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Sixth Semester B.E. Degree Examination, June/July 2015
Environmental Engineering - I

Time: 3 hrs.

Max. Marks:100

**Note:1. Answer any FIVE full questions, selecting
atleast TWO questions from each part.
2. Assume suitable data wherever necessary.**

PART - A

- 1 a. Explain the various types of water demand. (08 Marks)
- b. What is meant by per capita demand? Mention the factors that affect per capita demand. (06 Marks)
- c. What is meant by design period? Discuss the factors affecting design period. (06 Marks)
- 2 a. Describe the incremental method of estimating the population of a locality. (06 Marks)
- b. Mention the different sources of water supply. Give the factors governing the solution of a particular source of water. (06 Marks)
- c. What is an intake? Explain the factors governing the location of an intake. (08 Marks)
- 3 a. Enumerate the various physical and chemical characteristics of testing of raw water supplies. (08 Marks)
- b. Give the drinking water standards for the following parameters. Discuss their effect when they exceed their limits : i) Turbidity ii) Hardness iii) Chlorides iv) Fluoride. (08 Marks)
- c. Explain the method of sampling of water. (04 Marks)
- 4 a. Briefly explain the complete treatment process of a water supply scheme with flow chart. (06 Marks)
- b. What is Aeration? Explain the types of aerators. (06 Marks)
- c. Describe briefly the various constituents of coagulation – sedimentation plant. (08 Marks)

PART - B

- 5 a. With the help of a neat sketch, explain the working of Rapid gravity filter. (10 Marks)
- b. Design six slow sand filters beds from the following data :
Population to be served = 50000 persons ; Per capita demand = 150 lpcd ;
Rate of filtration = 180 litres/hr/sq.m ; Length of each bed = Twice the breadth.
Assume maximum demand as 1.8 times the average daily demand. Also assume that one unit, out of six, will be kept as stand by. (10 Marks)
- 6 a. Explain briefly the following processes : i) Break point chlorination ii) Super chlorination. (10 Marks)
- b. Mention the methods of softening the water. Describe zeolite process of softening water in detail. (10 Marks)
- 7 a. Explain briefly : i) Defluoridation ii) Desalination. (10 Marks)
- b. With sketches, explain briefly dead end system and grid iron system of distribution networks. (10 Marks)
- 8 Write short notes on :
 - a. Fire hydrants.
 - b. Pressure release valve.
 - c. Metering in distribution system.
 - d. Jar test. (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.